The JOURNAL of GEOGRAPHY

A Monthly Magazine Devoted to the Interests of Teachers of Geography in Elementary, Secondary, and Normal Schools

RAY HUGHES WHITBECK, Editor
Professor of Geography at the University of Wisconsin

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The JOURNAL of GEOGRAPHY

Volume XVII NOVEMBER 1918 Number 3

POLITICAL BOUNDARIES IN RELATION TO WIDER POLITICAL PROBLEMS

By GEO. G. CHISHOLM, Lecturer on Geography
Edinburgh University

ALL geographers are well aware that any book by the President of the Royal Geographical Society, Col. Sir Thomas Hungerford Holdich, is sure to be worthy of close attention. Through Messrs. Macmillan & Co., London, England, he has recently issued a volume entitled "Boundaries in Europe and the Near East," which may be regarded as a practical application to problems arising out of the present war of the principles set forth in his previous volume on "Political Frontiers and Boundary Making." In the present volume he insists (p. X) "on the primary importance of a complete knowledge of local geographical conditions in each case as the first and most important factor in framing a decision as regards boundaries," and adds that experience has taught him "that most of the trouble that arises out of boundary disputes and their subsequent settlement is due to quite elementary geographical ignorance." Nine-tenths of the international disagreements that arise, he states later, on (p. 2), "owe their existence to geographical inequalities and difficulties." But in reading the volume, and especially the first chapter, in which the author summarises the general principles to be applied in boundary making, one is continually reminded that there can be no application of geographical facts to human problems without taking into consideration facts which are not geographical, and some of them facts as to the permanent validity of which one cannot feel assured. It is clear therefore that generalizations involving such facts must be taken with great reserve.

There is much in Sir Thomas Holdich's volume, and above all in the opening chapter, which it is interesting to compare with the valuable and cogent article on "Geography and War" by Prof. Tower, which appeared in this *Journal* in November, 1917. In more than one passage in this article Prof. Tower recognises the fact to which attention has just been called. He tells us, for example (p.43), that, "as time goes on, physical barriers are becoming less and less effective as obstacles to hostilities, as shown by the Italian campaign in the Alps." In this opinion, however,

he is in direct opposition to Sir Thomas Holdich, who insists throughout on the continued importance of physical barriers from a strategical point of view, especially barriers in the form of a line of maximum elevation, even though that elevation may be slight, and contends that the whole course of this war has proved their value. As for the Italian campaign he holds that the weakness of the Italian defence arose precisely from the fact that the upper parts of the valleys, with the main passes, were entirely in Austrian hands. In this case, it may be surmised, the opinion of the experienced soldier is to be preferred.

Again, Prof. Tower, at the close of his article, in which he recognises that he has made a somewhat discouraging forecast, adds: "Such a gloomy future is, of course, not inevitable. Time may develop a more general attitude of national unselfishness toward territorial, racial and economic questions, as a result of which all these issues may become less acute." It is true that he goes on to say that "this is hardly to be expected." Nevertheless one may perhaps venture to subjoin that there is much virtue in his "hardly," and on this point something more will be said.

A third illustration of the doubt attaching to broad geographical generalizations in consequence of uncertainty as to the permanent validity of the non-geographical facts implied in them may be given in connection with a matter on which both Prof. Tower and Sir Thos. Holdich are agreed, but on which Sir Thomas risks the more unqualified statement. Both give prominence to population problems among the causes of war, and Sir. Thos. Holdich goes so far as to say (p.4), that "this root cause of boundary violation and aggression is universal, that it is based on laws of nature, and that inasmuch as no artificial restrictions on the output of population are possible, no conventions or leagues can safely fight against it."

Expanding Population and Military Aggression

Perhaps by " artificial restrictions" Sir Thomas means restrictions attempted by the government. In that sense he may perhaps be right. In any case governments are not generally disposed to aim at anything of the sort. But surely we have enough experience to show that we have no right to assume that reckless expansion of population must go on in all countries indefinitely. A hundred years ago, when Malthus wrote, he pointed to France as a warning example to the people of his own country of the evils ensuing from a too rapid increase of population. It is in the opposite sense that France is now very generally, whether wisely or unwisely, held up as a warning, and it is universally

known that the same tendency which has long been observed in France is gradually becoming more and more observable in many other countries. True there is frequent lamentation over the fact that this restriction of numbers takes place chiefly in the wrong section of the population, leaving the worthless or those of little worth to contribute unduly to the increase in numbers, with the result that it becomes difficult or almost impossible to rear in sufficiently healthy surroundings all who are born, and provide adequate education to make them as useful citizens as they can be made. But can it be taken as certain that, if we could be assured of a period of prolonged peace and security, even this state of matters would prove irremediable?

The postulating of such a period as a condition of bringing about the desired improvement may seem to remove any hope of such betterment to a very indefinite and remote future. Indefinite certainly, but perhaps not so remote as one is apt to think. Both Sir Thos. Holdich and Prof. Tower recognize the possibility of some favorable influence in a League of Nations. Sir Thomas indeed takes a rather peculiar view of the nature of the beneficial influence to be expected from such a union. Obsessed by his sense of the pressure of population as the great cause of aggressive war he thinks that "the greatest of all good offices that any leagues of peace and of the nations can fill is the enforcement of the stream of emigrants and colonists in the right directions" (pp.4-5).

A League of Nations

If that is the greatest benefit that a League of Nations can procure for mankind we are forced to believe that all that it can do is to put off for a time the evil day, for none knows better than Sir Thos. Holdich how quickly vacant spaces are filled up when all the conditions are favorable. Prof. Tower is more pronounced in his attitude to the idea of a League of Nations. "A powerful league to enforce peace is," he concludes, "more than an idealist's dream; it seems to be a necessity."

For my part I am inclined to hope that a League of Nations as beneficent in its operations as that which is desired by President Wilson may be set on foot within no long time after the present war, in spite of all the difficulties that stand in the way. None of these difficulties should be ignored. Those are doing good work who single out and emphasize them. But, great as those difficulties undoubtedly are, there are, it seems to me, reasons for thinking that they may be overcome, even to such an extent as to promote the development of "a more general attitude of national unselfishness toward territorial, racial and economic

questions," of which Prof. Tower has (and certainly not without reason) so little hope. There are indeed critics of such projects who hold that the fulfillment of this condition is essential to their success. "Without friendship," says Bernard Bosanquet,* "the force [established by any league of nations] is "dangerous and with it, perhaps, hardly necessary." But even if that view is sound, that, it seems to me, is no reason for concluding that the establishment of a League of Nations must be postponed to the Greek kalends.

The Growing Demand That Wars Shall Cease

For, first, we must consider that the sentiment in favor of peace is becoming more and more general. Probably it was never more wide-spread than immediately before the outbreak of the war. No doubt it was no more than a sentiment, accompanied by little thought of all that is necessary in order that peace may be kept, and therefore we need not be in the least surprised if that in itself was not enough to avert the war. It was a thought sprung from the heart, from which, according to Lord Morley, a French saying makes all great thoughts come; but to this saying Morley appends the comment "Yes, but they must go round by the head." **

Second, there cannot be a doubt that the sentiment in favor of peace will be enormously intensified by the experience of the present war. The Very Rev. W. R. Inge, Dean of St. Paul's, London, England, has somewhere said that when peace is made at the close of this war there will be as universal a feeling of relief and outburst of joy as at the peace which ended the wars of the Napoleonic period, or something to that effect.

Third, there have no doubt been wars in the past that have exceeded in horror even this war, but never, from the very nature of the case, has there been a war that has brought home to so many millions in many countries all the realities of war in all its hideousness, millions moreover that will afterwards have a direct voice in the government of their respective countries.

These, however, are mere feelings. I mention them first because they will be more immediately operative than other considerations. Still, they can do little towards averting war permanently. The utmost we can expect from them, especially the

* "Social and International Ideals," p. 297.

** "Recollections," Vol. II, p. 346. Lord Morley tells us that he is apt to scandalise his friends by adding this rider. If so, it says very little for his friends.

third, is to assist in securing a breathing space, a period for reflection, during which more important causes tending to the permanent peace of the world may have time to operate.

The Futility of Aggressive War

Much more importance, therefore, do I attach, fourth, to the fact that this war is likely to prove the greatest and most convincing proof of the essential truth of Norman Angell's main contention as to the futility of aggressive war. He may perhaps have been somewhat too absolute in his statement of this idea; but the severest and acutest criticism to which his book has been subjected seems to have convicted him, as regards his fundamental position, of no more than a slight exaggeration, his central thesis being in no respect invalidated by the proved errors of some of the accessory tenets by which he has endeavored to buttress it. If the peoples of the world once come to perceive this clearly the great step is made in preparing the way for the fulfilment of the first condition of the establishment of a League of Nations posited by Viscount Grey of Fallodon in his condensed but weighty pamphlet on that subject, the condition, namely, that every nation taking part in it should see its own advantage in doing so.

And this is all the more likely to be perceived when the true cost of the war comes to be fully revealed even to those who have stayed at home. During the war we have been getting on swimmingly enough by the simple device of borrowing, that is, promising, and the creation of a temporary prosperity by the lavish spending of borrowed money chiefly to meet the limitless demand for the means of slaughter. Capitalists, or, at least many capitalists have thus been enjoying the exhilarating sense of security in rising prices. But it is impossible for a nation any more than an individual to go on living for ever by borrowing. Promises must some time be kept, or they will cease to be relied on. What will then be the effect on prices? Will capitalists still enjoy that pleasing sense of confidence that leads them to embark boldly on vast enterprises? Then will be the time for all nations to count up the cost, but above all for the aggressive nation to strike the balance and see what she has gained.

War Does Not Solve the Problem

Then, fifth, surely another lesson will have been taught by this war on a gigantic scale. Even if we do recognize that pressure of population is apt to drive peoples in frenzy into arms against one another, it must be made clear by this war that for the problems of population war affords no solution. And if this

comes to be generally perceived, we have another important reason for nations seeing their own advantage in a league that may serve to maintain the peace of the world.

Now if this step were once achieved we should be far on our way towards that desideratum which Prof. Tower recognizes as possible, though "hardly to be expected." And deliberate measures might be taken with more hope of success with a view to furthering progress to that end.

For, sixth, in all civilized countries there are a number, and, I believe, a rapidly increasing number of men of wisdom and good-will, from among whom it should be possible to single out a few who should have it as their business to be on the watch for all causes that might lead to ill-will and menace strife between nations, and suggest steps to ward off the danger far in advance. Experience gives us reason to believe that, notwithstanding all the narrowness and pettiness of thought so prevalent among the great mass of the people educated and uneducated, the lead of those minds of the highest order would be willingly followed. One has only to think of the success of the great heterogeneous democracy of the United States in electing men of the highest character and ability to wield the great powers vested in their president. There would be plenty for such a body to do.

A League of Nations Seems Possible

We must remember that what is proposed is a League of Nations, no common government of the world. Now there is a healthy selfishness in nations just as in individuals, necessary to maintain the ordinary springs of action. National material interests do clash. But, as in civilized communities reasonable people manage to look after their own interests while keeping on good terms with their neighbors even when rivals, so too without miracle this should be possible among nations. One of the most excellent of the many excellent ambassadors with whom the United States has honored the United Kingdom, the late Mr. Bayard, used to delight in setting forth how many points there were on which international agreements had been concluded, and how rapidly the number was increasing. It is true that these were mostly points in which there was no real clashing of interests, and in which common sense was obviously on the side of harmony of action, but, in view of the alternative which this war has so clearly presented, so clearly shown to be an incomparably worse alternative for the future, it should not be beyond the reach of human wit to arrive at agreements even where material interests are in conflict. Much too might be done through the influence of such a body as we have imagined to keep in check the

rancorous and malignant criticism of foreign nations that does so much to stir up the war spirit. Max O'Rell used to tell a story of a noble-hearted Frenchman who was shocked at the way in which French school children were misled by reading school-books which made it appear that everything good and great in this world had come from Frenchmen, and who in consequence wrote a school-book designed to exhibit the great things that had been done by people of other countries. The book was sent to the Minister of Public Instruction, who read it with enthusiasm, and wrote to the author expressing his admiration and adding, "The book shall be introduced into every school in France—as soon as we have got back Alsace-Lorraine." The story might be profitable even if we dropped its humorous aspect. It might be well if every nation had such a school-book and if each were to introduce it into its schools without waiting to get back its Alsace-Lorraine.

The Importance of Social Betterment

Seventh, much importance with reference to our present subject is, it seems to me, to be attached to the efforts at social reform that are now being made in all advanced civilized countries. These efforts have perhaps so far resulted in little more than enabling us to discover more and more clearly the tremendous difficulties of the problem, which is essentially to make it possible for every member of the community to feel that life is worth living and that it is worth an effort to live well. How this infinitely complex problem is to be solved I cannot say, but many seem to think that the improvement of education, the maintenance of the public health, and the ensuring of pleasant surroundings for all people are at least steps in the right direction. I am among those strongly inclined to think, though I cannot prove, that such steps must tend towards a limitation of the reckless multiplication of population, which, if it continues, must always make the social problem, as well as the international problem, more difficult. It is perhaps in this sense that we may interpret Bernard Bosanquet's dictum "The royal road to peace is to do right at home". *

I could easily go on to eighth and ninth, but I fear that I have already travelled too far outside the field of geography for the patience even of the most indulgent editor of a geographical periodical. I have risen to lofty themes, though not so lofty as those to which Berkeley rose in his *Siris*, but neither did I start from the level of tar water.

* "Social and International Ideals," p. 309.

IN THE LAND OF THE HUDSON'S BAY COMPANY

By T. E. Savage
University of Illinois, Urbana

DURING the winter, in the Hudson Bay country, it is possible to travel overland with dog sleds and snow shoes, but during the summer the only means of transportation is by canoes along the streams. The Indians of this region are probably as expert canoemen as there are in the world. Progress down the rivers is easy, and comparatively rapid, except where portages around swift rapids are frequent or long. When the wind is favorable a blanket is put up for a sail and the canoe is carried along at a good rate. However, the wind is generally contrary so that the main dependence is on paddles. When rapids are approached the canoes are pulled in to the shore and the canoemen go forward to reconnoitre, and determine whether it is safe to run the rapids with the canoes loaded, or empty, or whether it is necessary to portage around them. Some of the portages in this region are 5 to 7 miles long, while those ½ to 3 miles long are common. In making the portages the Indian canoemen often carry loads of 200 to 300 pounds, going at a fast walk or trot for one or two miles at a stretch without stopping to rest.

Travel up stream is much more difficult and laborious than with the current. Where it is possible to walk along the shore the Indians track or tow the canoes against the current, one walking ahead along the bank pulling the canoe with a long line while the other sits in the boat and guides it off from the shore. They change from walking to riding about every hour, and make a distance of 20 to 25 miles per day in this manner. In rapids not so swift as to require a portage they pole the canoes; one standing at each end, they push the boat forward with poles. In the shallow rapids the canoemen frequently get out and, by combined pushing and pulling, force the boat forward between the rocks.

In making portages over the wetter places in the muskegs, as is necessary in crossing from one river system to another, great care is necessary to step only on the spots where the moss and roots of plants are most thickly matted, in order to avoid sinking to the waist or deeper into the yielding, water-soaked debris. The canoemen with packs frequently break through this weak support, and must be helped promptly before they or their packs sink beneath the surface. When the muskeg is very wet the canoes are tracked or pulled along, one man walking on each

side with a hand on the canoe by which he supports himself when his feet break through the top of the bog.

The trail over the muskegs is often difficult to follow. In places no path can be seen, and in others the way is marked at intervals by pieces of moss hung on the stubs or branches of the stunted spruce trees.

Travel on the streams, though at times strenuous, is mild recreation compared with canoe travel on the Bay. On the west shore of Hudson Bay the winds and waves and tides are in complete control. Squalls come up suddenly, and severe storms of wind and rain often continue without a break for 3 or 4 days. Strong winds cause the waves to run so high that it is impossible for a canoe to live on the water for a few days after the wind goes down. The bed of the Bay is so flat that *at low tide* it is necessary to go out 2 to 5 miles from the shore to find depth of water sufficient to float a canoe. Over much of the bottom there are so many bowlders that with the most careful watching there is constant danger of colliding with a rock concealed by a few inches of water. When overtaken by a storm at low tide the chances are good for the canoe to be upset or broken before getting back to the shore.

Natives of the Region

With the exception of the few white people at the various trading posts and a few Eskimo families that winter at York Factory, the only human inhabitants of the region from Nelson River south to near the Grand Trunk Pacific Railroad are Indians belonging to the Cree and Ojibway tribes. The Indians live for the most part by hunting, trapping and fishing. They trade fur at the posts for matches, guns, ammunition, traps, fish nets, blankets and clothing. Except for fur and rabbit-skin coats, they dress mostly in clothing obtained at the posts. Although the Indians have adopted the dress of the Englishman, in no other respects have they been encouraged to change their habits or mode of life, lest it should detract from the one object of the Hudson's Bay Company—the securing of the greatest possible quantity of fur.

For only a small part of the year are the able-bodied Indians seen around the posts. During the summer they go up the rivers, often two or three families together, and fish, usually by setting nets. The fish are smoked and dried, and baled in bundles of spruce bark to be used for winter food both for the natives and their dogs. White fish, jack fish, trout and suckers are the more common stream fish, but in some places sturgeon are also plentiful. The Indians often live for weeks at a time on fish and ber-

ries, and what game they can get, without any flour or other article of food from the trading posts.

Generally the Indians are dirty and lazy, and appear satisfied with a precarious hand-to-mouth existence. They are never out of debt at the posts, regardless of the amount of fur they capture. They live crowded together with their dogs in a most unsanitary manner. Many of them have tuberculosis, and their number is slowly decreasing. Their houses are tepees or wigwams made of small spruce poles set in a circle and fastened together at the top, on which are spread skins or canvas or other covering. Canvas tents obtained at the posts are often used for summer shelters.

In September the Indians go down to the posts and get what supplies for the winter their credit will buy, which depends on the amount of fur they turned in the previous year. They load their families and supplies in canoes and go up the streams 100 or 200 miles or more, to the place selected for their winter hunting and trapping. At such places they sometimes build a rude cabin of spruce logs and chink the cracks with moss. Occasionally this is warmed with a light sheet iron wood stove purchased at the post. The roof is not built to shed water, and in the spring the floors of such cabins become very wet and foul.

Hudson's Bay Company Employees

The white employees of the Hudson's Bay Company are mostly Englishmen or Scotchmen who came to Canada under a five to eight year contract, after which they are entitled to a one year furlough. They usually serve for a year or two as store keeper under the supervision of the post manager at one of the larger trading posts, after which, if competent, they may be placed in charge of one of the minor stations. The ordinary agents receive the munificent salary of $400 to $500 per year, and their living. A post manager has few or no expenses, and is an "absolute despot over his small domain", so that to some men the position has its attractions.

At the outlying posts the agent in charge of the store, or the exchange of supplies for fur, lives the most lonely kind of life, receiving mail only once or twice a year, and seldom seeing a white man from one year's end to the next. After a man has spent a few years in such isolation, he is scacely able to enjoy civilization. He frequently accepts a second contract with the company, marries an Indian woman, and spends the remainder of his life in this country.

The Canadian government does not attempt to exercise close

supervision in the territory occupied by the Hudson's Bay Company, such control being delegated to the District Managers of the Company who are endowed with the powers of police magistrate, justice of the peace, and collector of revenue, and rule the country in almost feudal style.

The district manager to whom the local agents are responsible, asks no questions regarding the relations of the agents and the Indians, being concerned only with the amount of furs and the favorable terms of exchange for them the agents are able to secure. A few of these agents are kindly disposed towards the Indians and have a real interest in natural history. However, their general attitude towards the Indians in the past, at least, is well shown in the diary of one of the former agents at York Factory, written about 1780; after describing the ravages of an epidemic that killed a great many of the natives, he wrote: "As an agent of the Hudson's Bay Company, of course, I deplore the loss this Company will suffer from the decrease in furs consequent upon the death of so many Indians"; but there was no word of pity for the sufferers.

Excepting the men employed in the construction of the new Hudson Bay railroad, and at the fur trading posts, there is not a single settlement, house or white person in all of this country. The Hudson's Bay Company has a trading post near the mouth of each of the larger rivers that flow into the Bay. This is usually eight or ten miles from the shore in order to be in reach of trees for fuel and shelter. Inland posts are established on lakes or in favorable localities near the head waters of many of the rivers. Small branch posts are often operated at intermediate places during the winter months. For nearly 200 years the Hudson's Bay Company was practically without a rival in the fur trade of this region, but in recent years Revillon Brothers, a French company, has become an increasingly successful competitor.

York Factory

The post of the Hudson's Bay Company at York Factory is about 9 miles above the mouth of Hayes River, and is the metropolis of the country bordering the west side of Hudson Bay. This is one of the oldest trading posts of the Company. It was operated first across the Point, on Nelson River, but in 1682 was built on the Hayes on the site of old York Factory, and 110 years later was moved to its present location one-half mile farther up the river.

Supplies for all of the posts on the Bay, and those tributary to it, are brought from England by the annual boat of the Hud-

son's Bay Company. The boat stops at York Factory where all the supplies for the posts of the York Factory district are unloaded, and the fur catch of the preceding year is taken on; and at Charlton Island in James Bay where the supplies are left, and furs received, from all of the posts in the James Bay district. From these bases the supplies are distributed by Indian employees in small sailing vessels to different posts along the Bay, and are taken up the rivers in canoes to the inland stations. The York Factory district extends north as far as Chesterfield Inlet, east beyond Winisk River, and inland more than 250 miles. It embraces more than 150,000 square miles, an area nearly three times as large as Illinois, and more than twice as large as the whole of New England.

Before the Canadian Pacific Railroad was built across the continent, York Factory was the central depot of the Hudson's Bay Company from which supplies were distributed to the inland posts as far "west as the Saskatchewan and Mackenzie Rivers, and across the mountains to British Columbia and the Yukon territory."

Five white employes of the Hudson's Bay Company are permanently located at York Factory: the district manager, the revenue officer, a stenographer, a storekeeper, and a clerk. About 250 Indians are dependant on this post.

Besides the main storage building there are three or four small cottages, a mess house, and a small mission church. There is no saw mill in this district, the boards for the buildings having been sawed from logs with a cross-cut saw by Indian employees.

The Hudson's Bay Company has provided no medical service for either their white employees or the Indians, and there is no practicing physician in the entire territory. Accidents, epidemics of measles, pneumonia, and other diseases have taken many lives that might have been saved by a little medical care.

Other Trading Posts

At the Severn post of the Hudson's Bay Company, near the mouth of Severn River, there is a small store building, a cottage for the agent, and another for the Indian servants. There is only one white man at this post which is supported by about 150 Indians. This is one of the few posts where the buildings are surrounded by a stockade, reminiscent of the troublous times in the early history of the Company.

The trading post near the mouth of Winisk River, 150 miles east of the Severn post, is also in charge of a single white man. The buildings include a cottage for the agent, a small store, and

a house for the Indian helpers. About the same number of Indians are tributary to this post as at Fort Severn. A mission church was built here several years ago, but in 1916 it was used as a store room for supplies of Revillon Brothers, who were starting a rival trading post at this place, but had not yet finished their building.

Near the mouth of atawapiscat River is another of the old posts of the Hudson's Bay Company, in charge of a half-breed Indian whose father came over from Scotland in the employ of the company. Revillon Brothers also have a thriving post at this place in charge of an aggressive French Canadian, who is gaining the larger part of the Indian trade from his rival. This post belongs to the James Bay district, where the climate is somewhat less severe than farther north. The agents at some of the posts in this district raise a few vegetables and keep one or two cows which supply milk and butter. Communication is here somewhat more frequent, and easier, and life is less isolated than in the York Factory district.

Fort Albany, on an island near the mouth of Albany River, is quite a settlement, including a church and small hospital, besides the buildings connected with the fur trading posts of Hudson's Bay Company and Revillon Brothers.

The Moose Factory post of the Hudson's Bay Company is situated on an island in Moose River about 10 miles from James Bay. It was established in 1675 and presents the impression of a civilized settlement compared with the conditions surrounding the posts farther north. It is the headquarters of the manager of the James Bay district, which includes an area only slightly smaller than the York Factory district at the north. A few horses, cattle, and chickens are kept here, and small patches of potatoes, turnips, oats, clover, and timothy are grown. A mission school is doing a practical work in caring for a number of half-breed and Indian children.

The post of Revillon Brothers at Moose Factory is on the west bank of Moose River about one mile above that of the Hudson's Bay Company. Besides the store and cottages for the employees, a small steam saw-mill is intermittantly operated.

Conservative Policy of the Company

The policy of the Hudson's Bay Company in Canada has been one of extreme conservatism. The effort has been to preserve the isolation and primitive conditions of the natives with as little change as possible, in the fear that frequent communication and intercourse with the outside world would weaken the

control of the Company over the Indians, and divert to some extent the attention both of the Indians and the agents from the business of fur getting. This conservatism is well shown in the management of the New Post store of the Hudson's Bay Company on Abitibi River, a small post supported by about thirty Indians. The supplies for this post are carried in canoes 125 miles up the river from Moose Factory, instead of being brought down the river only 65 miles from Frederick House station, on the Canadian Grand Trunk Pacific railroad. The Company does this because it fears that when a route of trade and travel is opened to the railroad the Indians will find other markets for their furs and other sources of supplies on terms more favorable than the Company usually offers.

In spite of the desire of the Hudson's Bay Company to preserve as far as possible the isolation and primitive conditions of the past in this country, the completion of the new Hudson Bay railroad through the heart of this formerly inaccessible region will bring better means of communication, new competitors, new markets, and new ideas that are sure to destroy the primitive conditions the Company has so carefully fostered for more than two centuries.

POINTS FOR THE TEACHER OF MATHEMATICAL GEOGRAPHY

By S. S. Visher *
U. S. Geological Survey

Some Results of the Rotation of the Earth

1. The alternation of day and night is produced.

2. The rising and setting of the sun, due to the earth's rotation, gives us a simple system of directions.

3. The apparent movement of sun, moon and stars is produced mostly by the earth's rotation. This movement helped attract man's attention to these bodies, and led to much stimulating speculation as to the nature and relations of the earth.

4. The apparent movement of the sun encouraged the division of time into units; these tended to systematize human endeavors.

5. The sun's apparent movement produces differences in sun-time in different longitudes. This makes Time Belts desirable when man travels fast and far.

6. The stars are revealed to all the earth at night. If the earth did not rotate, life could be maintained, if at all, only on

* Recently of the Moorehead, Minn., Normal School.

the side from which stars could not be seen. The educational value of the visible stars has been very great.

7. The axis is created and located by rotation, since if the earth did not rotate, it would have no axis. If it had no axis, seasonal changes, of the type we now have, would be lacking. If it rotated differently, except in the opposite direction or at a different speed, the axis would not be where it is. If the axis were inclined differently, seasonal changes would not be as they are. If it were inclined at a greater angle, they would be more extreme, and if not inclined at all, they would be lacking, unless produced in some way totally different than at present.

8. Latitude and longitude measurements and locations are made possible. No other system of location is so practicable on the ocean or in sparsely settled areas. If the earth did not rotate, one system of distances, corresponding to our latitude, could be based on the height of the sun above the horizon, or of a star, in the other hemisphere, but the second co-ordinate necessary for definite location, seemingly would be lacking, unless some star were located properly and was recognizable, and even then locating would be much more difficult than at present.

9. Rotation causes the tidal bulges, most noticeable on oceans but present on land also, to move around the earth daily. When these bulges are brought to the coasts by the earth's rotation, a piling up of water follows which greatly increases the importance of these bulges. In fact, if the earth did not rotate, and that rather swiftly, tides would be insignificant.

10. All winds and water currents are deflected to the right in the northern hemisphere, and to the left in the southern, by the rotation of the earth. The whirling winds, tornadoes, cyclones and typhoons, are significant results of this deflection.

11. Short but adequate periods of heating and cooling are produced. If the earth should rotate much more slowly, say once in 100 hours, the insolation during the longer day and the cooling during the longer night would quite likely prove disastrous for most life.

12. The flattening of the earth near the poles and the bulge in the equatorial belt are results of the centripetal force and the centrifugal force, respectively, of rotation.

13. If the rate of rotation were altered even a little, the distribution of water, and hence of land, would change promptly. For example, if it rotated in 25 hours instead of 24, the Arctic lowlands would be submerged, and new land would appear in the tropical latitudes. Conversely, if it rotated in 23 hours, a large share of the Amazon Valley, and other tropical lowlands would be submerged, and new land would appear in high lati-

tudes. (Deduced from Slichter's table on oblateness and rotation in "Chamberlin and Others: Earth Problems", Carnegie Institution). Of course the distribution of land and water powerfully influences climate, commerce, etc.

Some Results of the Spheroidal Shape of the Earth

While the earth is a spheroid rather than an exact sphere, its shape departs so little from spherical that in the following paragraphs no account is taken of the slight difference.

1. The existing zones result from the poleward decrease in the angle at which the sun's rays strike the surface of the earth. The wind-belts, ocean currents, and much commerce are indirect results of this zonation.

2. One-half the earth's surface is always receiving light and heat from the sun and two-eighths receive nearly perpendicular (60° or over) insolation at a time. This is a larger proportion of nearly vertical insolation than could be received by any other geometric figure rotating and revolving as our earth does—for example, a cube moving as our earth does, would receive only about one-seventeenth as much 60°+ insolation!

3. Day and night come gradually; dawn and twilight intervene instead of the more abrupt changes which would occur were the earth not spherical.

4. The need for the present time-belts is related to the spherical shape of the earth. If it were flat-sided, sunrise would be the same everywhere on each side.

5. An object weighs the same, about, at all points on the surface of the earth, as the surface of a sphere is equidistant from the center, and the gravitational pull which produces weight varies inversely as the squares of the distance from the center. Commercial transactions are facilitated by the constancy of weight of objects when taken from one part of the earth to another.

6. The distribution of land and water would be different if the shape of the earth were different. The water-bodies now occupy the parts nearest the center (depressions). If the earth were altered into a cubical shape, the water would promptly gather into six circular, isolated oceans.

7. The curved surfaces facilitate extended travel, as the travel-distance between points on opposite sides of the earth is less than it would be on a cuboidal figure. "The Great Circle Sailing Routes" are noteworthy in this connection.

8. Days and nights are more unequal in length, in high lati-

tudes than they would be if the earth were not spherical. The increasing disparity in the length of days and nights, except at the equinoxes, as the poles are approached, is a result of the spheroidal shape of the earth. This disparity supplements the inequality which would exist on the inclined earth, whatever its shape, and the influence of the angle of insolation, to produce greater extremes of season.

9. The curvature of the earth restricts visibility, hiding absolutely all low objects only a few miles distant unless the observer be at a considerable elevation. Persons seated in rowboats are invisible to each other if three and a half miles apart in calm water. This condition produces one of the attractions of mountain-climbing and of ascending in balloons or airplanes. It also results in a feeling of isolation and of independence which probably has aided human progress.

Exports of Manufactures During the War

THE world's exportation of manufactures in 1913, the latest normal year in international trade was, according to the National City Bank's compilation, stated in very round figures, Great Britain $2,000,000,000 of domestic manufactures exported, Germany $1,675,000,000, United States $1,099,000,000, France $775,000,000, Belgium approximately $400,000,000.

About 90 per cent of the manufactures entering international trade in 1913 was the product of countries now at war. In certain of the countries, notably Germany, Austria Hungary, Belgium and Russia, exportation of manufactures was suspended, and in others, notably France, Italy and Netherlands, the exportation was greatly reduced. In still others, however, notably the United States, Canada and Japan, the production and exportation of manufactures greatly increased following the war. With the Central Powers, Russia and Belgium no longer exporting manufactures, and France, Italy and Netherlands greatly reducing their exports, it is estimated that the total value of manufactures entering international trade was but little more than $8,000,000,000, of which the United States supplied nearly or quite one half, its total exports in that year having been $4,019,000,000.

Of this enormous exportation of manufactures of the United States in 1917, practically four times as much as before the war and twice as much as that of Great Britain in 1917, more than one fourth was destined for the battlefields of Europe. [*Commercial America*, July.]

THE REEF-ENCIRCLED ISLANDS OF THE PACIFIC

By W. M. Davis
Cambridge, Mass.

(*Continued from October*)

Population of Reef-encircled Volcanic Islands

It is otherwise with the mountainous volcanic islands within barrier reefs. They have a rich soil which supports a varied and abundant vegetation, including many useful plants. The original native population, although mostly of the same Polynesian stock as that on the atolls, was much better conditioned. According to Captain Cook, the great English navigator of the Pacific in the 18th century, the natives of certain islands had a remarkable knowledge of other islands, far out of sight from their home. Long inter-island voyages were then made in native canoes; and the tribes of one group sometimes visited or made war upon and conquered those of another.

Native villages on the smaller volcanic islands of the coral seas are on the bay-head delta flats, where coco-palms thrive and where garden patches of taro can be watered by canals diverted from the streams; other garden patches of drier soil are cultivated for yams on the adjoining slopes; but by far the greater part of the islands remains uncultivated. Plaintain, breadfruit and various other foods are found in the forest. Human sacrifices and cannibalism were practiced in the early days. Horrible as such practices were, they were hardly worse than the debaucheries indulged in by whalers and traders, and they were rivalled by the revengeful massacres committed by early white colonizers and by the "blackbirding"—the capture of natives of certain islands for sale elsewhere as laborers—carried on by irresponsible sea rovers from civilized lands.

Modern Conditions

The lawlessness of earlier times is now followed by more orderly conditions. On one of the islands that I visited in Fiji, two missionaries arrived about 75 years ago in time to reduce the number of women who were to be strangled at the funeral of a chief from thirty to fifteen; when I landed at the same spot, two "wireless" towers rose on a near-by hill, and the native commissioner and the wireless operator came down to the shore to welcome the arriving stranger. If a native is met nowadays on a path along the shore, he will say a pleasant word of greeting and

pass on quietly; the only regret of those whom I encountered seemed to be the same as mine, that we could not talk together.

Polynesians are now Christianized for the most part, through the labors of noble and devout missionaries, for the islanders are nearly everywhere a docile people. They are industrious to the measure of their few and easily satisfied needs, but not desirous of working regularly for foreign task-masters; they are protected fairly well in their treaty rights by the representatives of the various distant civilized governments which have now taken possession of nearly all the Pacific islands; yet the natives are less numerous now than in primitive days, before white voyagers and settlers came among them bringing civilized vices and diseases.

Pigs, goats, and chickens have been introduced from the continents: they now run wild on certain islands. Rats have become so plentiful and voracious on some islands that they climb palm trees and gnaw the coco nuts; hence the trunks in the better-cultivated groves are wrapped with a belt of zinc about 10 feet from the ground. Mosquitos and many other insects are also new comers. On Oahu, Hawaii, the place and date of the arrival of mosquitos on an American whaler nearly 100 years ago are known. Their presence on the Pacific islands makes quarantine regulations of the greatest importance, for the Polynesians have little resistance against the tropical diseases which are communicated to man through the agency of insects.

With the introduction of steam navigation, tropical fruits are exported from some of the islands to more temperate latitudes. The fertile delta lands that occupy the embayments of certain large islands have been cleared and transformed into sugar plantations. The Hawaiian Islands are exceptional in having plantations on their uplands as well as on their lowlands.

"Labor"

These modern agricultural developments, as well as the exploitation of phosphate rock on raised atolls, call for "labor," as workmen are there called; and as the natives will not work regularly, except under a tyrannous compulsion that is no longer permitted, "labor" comes from elsewhere. In Hawaii it comes chiefly by the voluntary immigration of the Japanese. In Fiji it comes chiefly under contract from the over-abundant and poverty-stricken population of India; and it is predicted that the Hindus, who already number 50,000 in Fiji, will in the course of this century outnumber the native population. New Caledonia, ex-

ceptional in being composed of "continental" rocks and in possessing valuable deposits of nickel and cobalt ores, has important mines where many Javanese and other islanders are employed. Small shops are kept on many islands by Chinese, whose parsimonious manner of living enables them to undersell the white trader. Thus the modern population of the islands is becoming very mixed.

The White Population

Several classes of the white population on mid-Pacific islands are of interest, in view of the geographical factors of distance from home and isolation from accustomed neighbors by which they are conditioned, as well as in view of the factors of a more local nature by which they are environed. The factors of distance and isolation act by anticipation in the home country through a process of social election, which retains the satisfied in their home occupations and releases the dissatisfied for distant service. The same factors act again on the islands in diminishing the conventional constraints of home customs, in weakening the volume and hence the force of public opinion, and in lessening the control of law.

The local factors include the tropical climate, which lessens energy and activity; new products and industries to which accommodation must be made; and an outnumbering native population of a lower race, which often tends in various ways to demoralize the immigrant minority.

These diverse factors affect the several classes of the white population in different degrees. The missionaries who have been among the earliest arrivals and longest residents, and the leading officials on whom serious responsibilities rest, must, because of the distance and isolation of their posts, be men of rectitude and power, even though sometimes of smaller measure than the men who are kept for responsible positions at home. True, the passing traveller hears many stories of the missionaries' misguided zeal, and of the small merit of their converts, veneered with Christianity; and repeated inquiries led me to believe that the complications of some sectarian theologies are really beyond the comprehension of the average Polynesian.

Nevertheless, it may be seriously urged that if traders and planters—not to mention passing seafarers—had supported the efforts of the missionaries instead of, as has been too often the case, for their own profit or pleasure defrauding and debauching the ignorant natives, social and religious conditions on the islands would have been far better than they are now. In any event the

early missionaries in particular were a devoted band, laboring faithfully in their line of duty as they saw it; many of them were men of marked ability and of great unselfishness; and surely enough can never be said of the heroism and self-sacrifice of their wives.

Certainly it was to the credit of mission teaching to see the native passengers and crew of a sloop, on which I made an inter-island crossing in Fiji, unite before turning in for the night in singing a hymn, and then kneel on deck while joining in a Christian prayer led by a native preacher. On another occasion, during the evening hours of a night that I spent on a small barrier-reef island in the mixed black-and-white company of a suspicious-looking crew of mother-of-pearls seekers, it was reassuring to say the least when the blackest of the party, instead of playing the vulgar desperado, drew forth an accordion—the surf was rolling on the beach near by and the palm leaves overhead were rustling in the breeze—and led the chorus of his fellows with "Onward Christian Soldiers."

Stories of the corruption of certain officials are current; but the members of this class whom I had the good fortune to meet gave me the impression of being honest, competent, industrious men. A native commissioner with whom I lunched on an outlying island talked seriously and earnestly of his duties; a doctor in charge of a leper hospital in a most isolated spot where I spent two days was warmly devoted to his charges; a judge from whom I received a most courteous reception in a remote colony impressed me as giving interested and careful attention to his varied responsibilities; an engineer in charge of road-making and another engaged in harbor improvements were intelligent men, expert in their special lines of work. These officials have been selected at home, and have gone out to their appointed work. The accredited agents of steamship companies and banks in the more important towns and the managers of large plantations on certain islands have also been sent out to their tasks and appeared to be of the same order as the government officials. These impressions do not go very far, but as far as they go they are creditable to insular administration.

The traders and planters who have established themselves independently on distant islands have seldom been sent there, but in the course of a wandering life under the necessity of making their way in the world have sooner or later found a chance that has satisfied them and have stayed by it. My opportunity of making acquaintance with them was not extensive, but those whom I met were mostly men of force and intelligence. That

they were hospitable need hardly be told, for hospitality is a virtue that thrives in distant places; that they were entertaining companions need hardly be added, in view of the adventurous and eventful lives that many of them have led. A good number of them have married native wives.

The traders are said sometimes to drive hard bargains with the natives, and not always to observe regulations regarding the sale of liquor; and it is told of the planters that those on remote islands are not always just or humane in the treatment of their "labor." I have no wish to believe these stories, in view of the kind reception and generous assistance that planters and traders always accorded me in their out-of-the-way abodes. And yet one of them who was most helpful in advising me regarding local excursions was characterized as a "smooth rascal" by an official who charged him with violating the local laws.

The residences of the well-to-do members of these several classes are frequently delightfully situated; the houses are well adapted to the climate, the grounds are most attractive, and the veranda views of mountains, valleys, lagoons and ocean are enchantingly beautiful: such are the compensations with which reef-encircled islands atone for their remoteness.

In one of the finest of these houses, the home of a British governor who made me his guest for several weeks, my windows looked out upon a slope leading down to the lagoon of a barrier reef, whence the sound of surf came ashore with the sea wind; and over the horizon beyond rose the graceful outline of another reef encircled island, the lagoon and the embayments of which I explored in a native sail boat most enjoyably, and the view of which was afterwards doubly delightful from having seen it so intimately. It was a rare privilege to return to that house after my trips to one island or another, and to be welcomed by the household that it contained; a household which, distant as it is from the rest of the world, has been sought out to mourn the death of a son, fighting in France!

There are other classes of resident whites besides officials and missionaries, traders and planters: occasional health-seekers, represented by the beloved Stevenson; French convicts, some of whom remain on New Caledonia after the term of their sentence expires; and finally the outcasts—men who have "disappeared" from elsewhere, remittance-men, human derelicts or beach-combers. Many are the stories told of these rejects: they often avoid members of their own race and consort with the natives. Some of them are active and thrifty enough in their secluded nooks, and one suspects these of having vanished for

personal reasons from their former homes. Others live lazily in comfort, and these may be classed as remittance men, who are supplied with funds by their relatives as long as they keep out of the way. Others again are reduced to abject misery and live no one knows how; these are presumably the vicious and depraved who have tried their last chance and lost it. How many kinds of men go to make up the world!

GEOGRAPHY TEACHERS

By the Editor

The Making of a Teacher

THE teacher is a product, and every product is made up of certain definite factors. Three of the factors which combine to make a teacher are:

1. *Character* in its broadest sense
2. *Health*
3. *Training and Education.*

Character is what we are—it is the resultant of all our mental and moral qualities; a strong character is compounded of that potent thing called personality, that commanding thing called force, that contagious thing called enthusiasm, that sunny thing called optimism, that winning quality called sympathy, and that none-too-common thing called common sense. Character shows in little things like neatness of dress, care of nails, hair, and shoes, and in those great things called ideals. Emerson said, "What you are speaks so loud that I cannot hear what you say." Unquestionably the dominant factor in the making of a great teacher is a fine, strong character. Since this is largely a matter of inheritance, it is of small use to discuss it here. However, it is only partially true that teachers are born rather than made.

It is equally true that teachers are also unmade—unmade by poor health, by lowered vitality, and by over-wrought nerves. Poor digestion is the parent of pessimism and no pessimist was ever a good teacher. Optimism, a sense of humor, mental buoyancy, faith in humanity, and ability to see things in their proper perspective, are the gifts of good health. Half the worries of the school room, half of the premature wrinkles in face and disposition, half of the friction with pupils are the penalty of too little sleep, too little relaxation, and too little fun in the teacher's monthly schedule. The teacher who doesn't take time for these things will soon be so busy trying to correct the consequences of her neglect, that she really won't have time. You can be a good

teacher without Latin but not without health. "Good digestion, good discipline" is not only an alliteration; it is a philosophy.

So much for character—largely beyond our control—(though by no means wholly) and so much for health—largely within our control; now, as to that third factor in the making of the teacher—her *education and training.*

Education and Training

Pedagogy is a science, but teaching is an art—it is the application of pedagogy. Given character, health, and some education—and experience will in time produce a teacher; sane pedagogical training will accelerate the process. You can no more mistake the trained teacher than you can the trained singer, though you can have both singers and good teachers who are self-made. Commend me, however, to the teacher upon whom both nature and the schools have done their best. The foregoing remarks may appear to have little connection with the particular subject of geography teaching, but as a matter of fact they do have a great deal to do with it; for the good teacher of geography does not differ in any essential particular from a good teacher of any other subject.

The four points that follow are some of the desirable elements in the preparation of a geography teacher:

1. She should have learned to like geography and to believe in its substantial contribution to the making of citizens.

2. She should have had at least an elementary course in physical geography with field trips.

3. She should have had a review of world geography, covering the ground included in the grammar school course, together with a study of the pedagogy of the subject.

4. She should have studied at least North America and Europe somewhat intensively.

All this can be done in one year, five hours a week in a normal school; it can not be done in less, and any normal school course which assumes to prepare teachers for teaching geography in the grammar grades should be unwilling to send out graduates with less than this equipment. Of course it is true that many graduates do not have even this preparation; and that is one reason why geography is commonly declared by superintendents to be the most poorly taught subject in American schools. The plain truth is that too many of our schools which train teachers for the elementary grades, send them out to teach a very broad subject with a very narrow preparation.

The Unsatisfactory Results of Geography Teaching

It is widely asserted that geography is not as a rule so effectively taught as the other studies in the elementary school. This conviction is so widespread that its essential truth cannot be doubted.

The fact that geography is taught in the schools of every civilized land, that it has been for centuries regarded as one of the fundamental branches of education, and the further fact that, speaking generally, it is not well taught in the majority of schools lead to two definite questions:

1. Why is geography not more satisfactorily taught?
2. What ought to be done about it?

Since the same teachers teach geography in the grades as teach the other subjects, it seems evident that the less satisfactory results in geography are not due to its being taught by inferior teachers. It is possible that the difference may lie in the nature of the different studies. It may be that the successful teaching of geography requires something in addition to teaching skill, good native endowments, and a general education on the part of the teacher. The fact that other branches of study are credited with being better taught by the same people suggests this. The teaching of reading, writing, spelling, drawing, and arithmetic depends for results mainly upon the all-round teaching ability of the instructor, not especially upon the teacher's breadth of knowledge of these subjects. These subjects are designed to give training in the doing of certain things. Their knowledge content is subordinate to their training purpose.

What is there in the nature of geography that makes it unusually difficult to teach with satisfactory results? During a decade of supervisory work, in which time I daily visited classes in the primary and grammar grades, this question came to me frequently. One day it was unintentionally answered by a teacher of many years experience, one of the best teachers in the school. I had visited her geography class and at the end of the period she said with much earnestness, "Oh, I do wish I knew more geography! It requires so much knowledge of so many countries that I feel all the time as if I know too little to teach it." Again and again that same feeling has come to me as a university teacher of geography—"It requires so much knowledge of so many countries!" Therein lies one reason, possibly the major reason, why the subject is taught less satisfactorily than most other branches. It is a subject of exceedingly broad scope. To compass even a reasonable portion of the field of geography requires much reading. To know what ones of an almost endless

array of facts are best worth teaching, or are most deserving of emphasis, calls for a great deal of knowledge. Lacking that knowledge and being conscious of the lack makes satisfactory teaching difficult. Since preparation for geography teaching includes a knowledge of peoples, places, resources, and industries in every country in the world, it is evident that the ideal geography teacher should be a person of broad general knowledge; broader, in fact, than in the very nature of the case can reasonably be expected.

Need of More Geography in Normal Schools

Since geography is taught in four or more of the eight grades of every elementary school, and since nearly every elementary school teacher is likely to be called upon to teach the subject, it logically follows that training schools should give their graduates a preparation in geography as nearly as possible commensurate with the recognized needs of the subject. The fact cannot be escaped that if geography is to be taught for four or more years to every child who goes through the elementary school, the results of those years of instruction ought to show favorably in the education of the child. It may not be agreed that the fault lies in the limited knowledge of geography possessed by the average teacher. Possible the trouble is with our methods, our text books, or our courses of study.

Without question some teachers' methods are better than others; and the same is true of books and courses of study, yet I am convinced that there is no substitute for a reasonably broad knowledge of the subject itself.

Partial Remedies

For some years to come this condition is likely to continue, but the rapid growth of geography in American universities is sure to exert an influence upon the schools and this in time will strengthen geography in these schools. During this period of change which we know is underway, teachers of geography should use existing opportunities for broadening their own geographical knowledge. This may be done by attending summer schools. It may be done, as some are doing, by taking a year off for study in a university where geography is broadly taught. It may be done less effectively by one's own reading, and this means may be improved by taking a systematic reading course after the model of the Chautauqua reading courses. This would be a worthy undertaking to be fostered by the National Council of Geography Teachers. Yet the inspiration and enthusiasm which one may get by attending extension classes or classes in a good summer school are a large factor in putting life into the teacher's work.

THE AIM OF GEOGRAPHY

[From *The Geographical Teacher*, London]

AN objection which is sometimes urged by officials and others in this country to the recognition of Geography as an independent subject in the highest secondary schools and in the Universities is the alleged uncertainty of its scope and the variety of interpretations put upon its essential aims and objects even by its most ardent advocates. Those who have followed the progress of geographical work in France and on the Continent know that the objection is no longer valid. It is only because humanistic education in Britain has in certain important respects lagged behind that of our neighbours that we are uncertain of our goals. Five years ago the eminent French geographer, Professor Vidal de la Blache, whose death occurred but a short time ago, was able to write as follows: (*Translation*) "We have long been acquainted with a geography uncertain of its object and its methods, oscillating between geology and history. This condition is passing away. That which geography, in exchange for the help which it receives from other sciences, is able to bring the common store of knowledge is the ability not to separate that which nature assembles, to comprehend the interdependence and correlation of facts, either as parts of a knowledge of the whole earth, or as pertaining merely to the region where they are known. There is in that, without doubt, an intellectual benefit which may extend into all realms of the mind. In tracing the paths by which geography has come to know its aim and to establish its methods it may be seen that the science has been guided by the desire to observe more and more directly and more and more carefully, the realities of nature. This method has borne fruit; it is necessary to follow it carefully."

The conception of Geography developed by Prof. La Blache is now completely accepted in France and is well on the way to acceptance in this country. Nor is it a new one. Geographers are but returning to the first principles which the intense specialisation of the second half of the nineteenth century tended to obscure. Set beside the dictum of La Blache the following words of Thomas Arnold of Rugby in 1842: 'A real knowledge of Geography embraces at once a knowledge of the earth and of the dwellings of man upon it; it stretches out one hand to history, and the other to geology and physiology*: it is just that part in the dominion of knowledge where the students of physical and of moral science meet together. Let me once understand the real geog-

* Probably used with the meaning of our word "Physiography."—EDITOR.

raphy of a country, its organic structure if I may so call it; the form of its skeleton, that is of its hills; the magnitude and course of its veins and arteries, that is, of its streams and rivers; let me conceive of it as of a whole made up of connected parts; and then the position of man's dwellings, viewed in reference to these parts, becomes at once easily remembered, and lively and intelligible besides.'

If we go back still a little farther to the time of Carl Ritter, who from many points of view can be regarded as the father of the subject in its scientific form and who was appointed Professor of Geography in the University of Berlin as long ago as 1820, we find the same idea dominant. 'Nature,' says Ritter, in the Introductory Essay to his 'Erdkunde,' 'refuses to be studied except in the great mutual play of all her powers, in the connection of all her manifestations. Only when thus studied does she irradiate with life and light all the paths which human activity dares to tread . . . ought it not to repay our trouble for the sake of the history of man and of nations to take our stand . . . in the place of their united activities, and to consider the earth in its real relation to man; . . . to trace the course of the simplest as well as the most diffused geographical laws in results, some of which are settled and permanent, some changing, some living and organic?' And he forsees a time when the world of nature as well as of morals and mind shall have been so far compassed as to make it possible for the far-seeing among men 'sending their glance backwards and forwards, to determine from the whole of a nation's surroundings what the course of its development is to be, and to indicate in advance of history what ways it must take to retain the welfare which providence has appointed for every nation whose direction is right and whose conformity to law is constant.'

THE SHEEP AND WOOL INDUSTRY OF QUEENSLAND, AUSTRALIA

THE possibilities for the development of pastoral industries are greater in Queensland than in any other State of the Commonwealth of Australia. At the present time Queensland, with an area of 429,120,000 acres, or 670,500 square miles, is the largest cattle district and should in time be also the largest sheep district.

In the past there have been many very large holdings of territory controlled by syndicates or individuals. Some of these holdings comprised thousands of square miles of territory, but they are now being cut up into much smaller divisions, and the

total number of sheep is much larger. Statistics show that in 1860, at which time the holdings were very large, there were only 3,166,802 sheep in the State, whereas in 1914 the number had increased to 23,129,919.

Queensland Capable of Maintaining Larger Flocks

It has been estimated that 10 acres of land covered with natural grass will sustain one horse or one cow in normal times, and 5 acres of the same kind of land will maintain one sheep. These conditions, however, could be greatly improved; according to the statement of an expert in the matter of sheep raising, if planted grasses were grown on those parts of Queensland near the coast, and the areas stocked with small classes of British breeds and crossbreeds, the land would be capable of maintaining three sheep to 1 acre. There are many thousands of British breeds and crossbreeds now being raised in close proximity to the coast.

Farther inland, as for instance in the Darling Downs district, it has been demonstrated that when the holdings are divided into smaller areas the land will support one sheep to an acre. From these figures it is estimated that there should be a total of about 70,000,000 sheep in Queensland. The fact that there could be maintained many more sheep than there are now in the State is shown by the increase in the number of sheep from 20,289,633 in 1891 to more than 23,000,000 in 1914.

There are good years and bad ones in the State, just as there are in other parts of the world, but the bad seasons in Queensland usually do not last more than one or two years, and though the State suffers much loss in time of drought the recovery is very rapid.

It is noticeable that whereas there were in 1914 more than 23,000,000 sheep in the State there were only about 15,500,000 in 1916. This decrease was due largely to the heavy droughts in 1914-15 and to the great amount of frozen mutton shipped to Europe since the present war began.

While most of the cattle-raising holdings do not contain more than 10,000 to 60,000 acres, there are still some which contain thousands of square miles.

The Warenda ranch in central Queensland has an area of 5,000 square miles, and it is said to be the largest in the Commonwealth. There are on it to-day more than 100,000 sheep, but formerly it was only cattle-grazing territory.

Most of the grazing country is held on long leases from the Crown, but there is also a large amount of land occupied as freehold by wealthy companies.

Some of the larger sheep ranches in Queensland are as follows, the number of sheep on them being given for the year 1916: Wellshot (Illfracombe district), central Queensland, 141,174 sheep; Milo (Adavale district), southwestern Queensland, 136,951 sheep; Darr River (Long Beach district), central Queensland, 127,000 sheep. There are 8 sheep ranches carrying more than 100,000 sheep each, 12 with more than 80,000, and there are many carrying from 40,000 down to a few thousand.

When it is time for shearing, the flocks are gathered and driven to pens near the shearing sheds. The shearing is now done by machinery, either electrically or steam driven. Formerly it was done by hand, and the records made by some of the most expert shearers have not been exceeded by the machines. But the system of shearing by machinery is more efficient in general. It is on record that a number of the sheep shearers in the State have handled more than 200 sheep in one day.

One of the most up-to-date shearing sheds in the Commonwealth is that of the Isis Downs, in the Isisford district, central Queensland, where there are 50 shearing stands. The largest woolshed in the Commonwealth is the Tinnenburra, in the Cunnamulla district, southwestern Queensland. It has 100 stands..

The small grazers send their sheep to the woolsheds located on the large ranches which may be near to them. About 100 hands are employed on a large sheep ranch at shearing time. The shearing season lasts from January to December, but many sheep raisers prefer to have the clipping done in the spring or in the autumn. The early shearing is considered desirable in order to avoid an excessive amount of burr in the wool.

In earlier days sheep shearers traveled about the country on bicycles, but now motor cars, trucks, and motorcycles are in general use. Shearing pays very well, and shearers who are economical are often able to take up land of their own after a few years. [*U. S. Commerce Report.*]

GEOGRAPHY: WHAT FACTS SHALL WE TEACH?

AN ENGLISH POINT OF VIEW, BY E. J. ORFORD IN THE *Geographical Teacher*, SUMMER NUMBER, 1918.

FOR years now educationists have been instilling into us the great possibilities of Geography as a school subject; they have warned us that a certain procedure is bad, and have laboured to show us what is good. Their opinions, echoed and re-echoed by lesser persons, have shaped themselves in the popular mind into

the creed that there are two kinds of geography—the old and the new. The one is reputed to consist of lists of names and to be very uneducational; the other comprises 'reasons' whereby the drudgery of rote learning is obviated and wherewith some subtle process of improvement goes on in the child's mind, the character of which can be only vaguely defined and still more vaguely calculated.

In the present paper the sole aim has been to consider the needs of one upon whom at no distant date will devolve the responsibilities of citizenship, and emphasis is laid rather on the context of the subject than on the method of treatment, for on occasion the consideration of dry bones becomes an imperative necessity.

Recently I have been enquiring among non-teacher friends as to the value of those famous lists of old, and trying to make out the profit gained by learning such associations as 'Needles are made at Redditch' and 'Redditch is famous for needles,' in which we were so thoroughly drilled that no matter how tired or bored we might be we reacted unfalteringly with the one or the other according to the stimulus applied. This enquiry has led me to turn to the text book that I strove so hard to memorise, and I find that by the time I was sixteen the number of names to be learnt was 3,400. Such a number is obviously far too great for a youngster of ordinary capacity to deal with, but such things were perhaps only to be expected in the bad old days.

Investigation in two of the most widely circulated of the modern representatives of that book, however, written by two of our leading exponents in geographical teaching, revealed an average above that of the older book, and many names mean now, as they ever did, cram and boredom, and a thankful forgetfulness when the need for trying to memorize them has passed.

The absurdity of such a high number is seen when reference is made to the indexes of text books dealing with other subjects occupying the same position in the curriculum as geography, and the question naturally arises as to why this mass of names has gained currency. It is in suggesting an answer to this question that I find the best means of determining what is the most profitable course and outlook to be taken in school geography.

Converse with a man of sixty-five, one whose formal knowledge of history and geography was most probably of the smallest when he left school half a century ago. Upon history you will find him ignorant, unless he has taken an interest in the subject and read accordingly. In geography, on the other hand, you will find that he has no small knowledge, and that for the simple reason that he hardly passes a day without a geography lesson,

sometimes a brand new one, sometimes the recapitulation of an old one. The newspaper, even in the biggest slump in news, contains references to a number of the more important countries and cities of the world, so that China, Russia, the United States and the like are terms of wide and complex meaning to one who has never even heard of the Renaissance, the Thirty Years' War, or the Industrial Revolution.

Carried on by means of such 'lessons' for half a century this widening and deepening knowledge assumes considerable proportions; but so gradually and unsuspectingly has it been acquired that the subject is wholly unconscious of the process and herein lies our danger; for when a man becomes interested in his nephew's or grandchildren's schooling he is apt to think that the accumulated knowledge of his lifetime is just what he left school with. Teachers, employers, text-book writers all fall into the same error, and strive unceasingly to devise such courses of study for children as shall make a few years book-work in school equal to many years of adult experience in the world outside. Let us realize that in teaching we are sowing seeds that have to grow under conditions over which we have no control. If we choose seed of the right sort growth will be continuous and luxuriant; if not, most of the seeds will perish, and of those that do not some will barely survive.

For simplicity the subject matter of geography may be grouped under two heads—topographical facts and geographical facts—remembering that both terms are temporary labels and carry no implied significance. With regard to topographical detail the following points are worthy of consideration:—

1. The mere knowledge of the name and position of a place adds interest to all references encountered.
2. Interest leads to the accumulation of general information about the place named.
3. The greater our knowledge of a given place the greater will be our appreciation of new material relating to it.
4. The learning of names—with positions—on the globe or map of the world to form, as it were, a key plan, constitutes an essential part of early geographical knowledge—say to the age of sixteen; the maps of Europe and the British Isles being used in conjunction with the globe on account of their relatively small size.

The mere learning of names and positions on the map, so far from being advocated, is usually deprecated, because of the strong tendency thereby to make geography a purely mechanical exercise. The great source of danger lies, however, first in learning the names without using the map or globe at all; and

secondly, in introducing too large a number of names. So many in Belgium and so many in each country that the list is soon unmanageable, and the position of fruitless drudgery is quickly reached.

How many names then can we reasonably expect a boy or girl to learn by the age of sixteen? As a basis of discussion I suggest 500 distributed thus: British Isles 200, Europe 100, Africa 50, Asia 50, North and Central America 50, South America 25, Australasia 25; and as the whole list is too long to quote I give the names for one continent: Asia, Arabia, Mecca, Aden, Red Sea, Asia Minor, Palestine, Jerusalem, Damascus, Mesopotamia, Euphrates, Tigris, Bagdad, Persia, Afghanistan, Siberia, China, Pekin, Canton, Shanghai, Yangtse, Hong Kong, Japan, Tokio, Yokohama, Malay Peninsula, Borneo, Java, Straits Settlements, Singapore, India, Bambay, Calcutta, Delhi, Madras, Ceylon, Colombo, Ganges, Bengal, Punjab, Burma, Rangoon, Himalayas, Siam, Annam, Tibet, Pacific Ocean, Indian Ocean, Persian Gulf.

I am not prepared to uphold the merits of any particular name included against one that is excluded, for, while there is no doubt as to the inclusion of India and China, it is obviously difficult to know where to draw the line lower down on the list. I can claim this, however, that the learning of these 500 names, with their positions, will prove of infinitely greater value than the learning of the 5000 names next in importance. Of the 500 the fifth hundred is of less importance than the fourth and might be dispensed with; the sixth hundred is of still less importance and, in comparison, hardly worth learning at all.

With the consideration of *which* names shall be taught, and how many, there is the question of *how* they shall be taught. Normally each one will be dealt with in its own particular region in the best manner possible in the particular circumstances, but something more than this is needed, and it is worth while discussing whether we might not take courage and have these names and positions on the map of the world learnt as a purely mechanical exercise supplementary to the ordinary course of lessons and not necessarily in consonance with it: That is India, that is China, there is Bombay and there Pekin. If this were done periodically, say twice a year from the age of twelve, the knowledge of names and positions six months after leaving school would still be considerable. Such a method would give us most of the advantages of a concentric system without loading us with its obvious disadvantages.

Geographical facts can only be lightly touched upon now on account of the restrictions of space. Like topographical facts they may be arranged in order of importance, those at the be-

ginning being such as will develop automatically with the ordinary experiences of life and those which, with the average person, remain mere tags of information. Among these latter such facts as: the earth is nearer the sun in December than in June; the chalk of the Wealden area was laid down in the Secondary Period; certain lines on the surface of the earth may be referred to the edges of a tetrahedron; a surveyor's note book is ruled out in columns.

As an example of the former we might use the following: At the equator it is hot; as we approach the poles it gets cooler until in the polar regions themselves we have the great ice-deserts.

A small child can understand such a statement if it is suitably presented. He can realize that the Eskimo must go in furs while the Englishman can keep warm in wool, and the negro next to nothing. As he gains experience he will learn to appreciate the degree of heat and cold in each case, the effect on vegetation and the general life of the people. Later, while still at school, he may be led to inquire into the causes of these differences and be interested in the apparent movements of the sun and the actual relative movements of the sun and earth. He will be in a position, too, to understand such matters as say—the distribution of negroes in the United States, the significance of the West Indies in past history, and the parcelling out of large areas of the world among European nations that has been going on during the last forty years.

When he leaves school he will continue this process of development automatically. In other words he has acquired a *live and important fact* which has a very great capacity for growth and expansion.

THE SOUTH AFRICAN GEOGRAPHICAL SOCIETY AND ITS JOURNAL

THE quickened interest in geographical studies manifest in this country is also manifest in other parts of the English-speaking world. One of the latest evidences of this is in South Africa where the South African Geographical Society has been formed and "The South African Geographical Journal" has been established. Vol. I, No. I of this magazine appeared recently.

Mr. J. Hutcheon, Lecturer in Geography in the School of Mines and Technology (University of South Africa), Johannesburg, has been the moving spirit in the enterprise.

The Journal of Geography and, we are confident, geographers throughout the United States extend to South African geographers their hearty good wishes.

We reprint herewith excerpts from Mr. Hutcheon's address given at the Inaugural Meeting of the Society:—

"None know better than teachers of geography in South Africa how much it has suffered from the fact that usually it is not reckoned at the annual inspection as a "failing subject." They have been led to realize that it is unprofitable to devote much time or care to its teaching, and, since it brings no "marks," pupils have come to despise it. Although it may seem strange, the fact that geography is to take a place in the more advanced school examinations will, as it were, bestow a dignity upon it which will appeal to both teacher and pupil alike, and will, we hope, influence the treatment of the subject from the lowest classes upwards. Moreover, the South African youth is naturally a geographer. The exploratory side of geography appeals to his imagination and love of sport and adventure: the practical branches of the subject appeal to his veld-bred desire of freedom and open-air; and the commercial phase appeals to his business instincts.

"The deeply-rooted prejudice against the subject, the complaint of an already over-crowded curriculum, the insufficient supply of specially trained teachers, the lack of suitable text-books, and a system of examination which tests verbal memory of names and isolated facts rather than rational geographical intelligence, are a few of the difficulties which can be effectively met only by the united and sustained efforts of those who have a firm belief in the much-to-be-desired all-round mental development which few subjects in their study can furnish better than geography.

"To raise the standard and to safeguard the interests of the subject and those teaching it, to encourage geographical research in all its branches, and to arouse in the general public some enthusiasm in a subject which has such a direct bearing on everyday life, this Society is being formed.

"The establishement of a geographical museum and library containing commercial and industrial specimens from all parts of the world, diagrams, geographical literature, maps, photographs, lantern-slides, models, etc., available for members, will also form part of our work. The commercial museum, for which we have already been offered a considerable number of exhibits, will, we hope, eventually be arranged on the lines of those on the Continent and in America.

"Then we shall endeavor to promote "floating exhibitions," whereby samples of commodities may be brought here from other countries, and samples of ours sent to distant markets. Exhibitions of new text-books, maps and models, and of geogra-

phical work done in schools and colleges will also receive attention.

"As has been remarked, the world is the field of the geographer, and man in his environment his special study. It should, therefore, encourage international understanding, and, in this connection, it would seem a profitable experiment to establish an international geographical bureau whereby exchanges of opinions regarding teaching methods, local geographical phenomena, and even exchanges of teachers and students for a period might be arranged—at any rate, throughout the Empire.

"The Society will make geographical education (and particularly commercial) one of its special cares, and ere long we hope to see travelling scholarships founded. Local excursions will be arranged, and when conditions in Europe again turn towards the normal we shall endeavour to establish annual tours for students and teachers of geography. Inquiries have led to the opinion that such a scheme will be welcomed and will receive considerable support from the various authorities concerned. It is scarcely possible to over-estimate the benefit that could be derived at a very moderate cost from a short organised trip, say, to Europe or America or Australia."

CURRENT MATERIAL FOR THE GEOGRAPHY TEACHER

Mexican Oil as a Factor in Our Present Requirements

The world's production of petroleum for 1917 was 503,708,000 barrels. To this amount the nine leading producing countries contributed as follows:

Country	Barrels	Country	Barrels
United States (marketed)	340,000,000	India	8,500,000
Russia	65,000,000	Roumania	6,500,000
Mexico	55,293,000	Galicia	5,500,000
Dutch East Indies	14,000,000	Japan and Formosa	2,800,000
		Peru	2,500,000

Mexico thus stands easily third as a producer, but with Russian and other supplies cut off and with a depletion of United States stocks to 63,000 barrels daily our interest in the Mexican output is obvious.

According to "El Economista," Mexico, April 25, 1918, the production of crude petroleum since 1901 (when the Doheny-

Canfield operations in the Ebano district, west of Tampico, began the commercial history of Mexican oil) has been as follows:

Year	Barrels	Year	Barrels
1901	10,345	1910	3,634,080
1902	40,200	1911	12,552,798
1903	75,375	1912	16,558,215
1904	125,625	1913	25,696,291
1905	251,250	1914	26,235,403
1906	502,500	1915	32,910,508
1907	1,005,000	1916	40,545,712
1908	3,932,900	1917	55,292,770
1909	2,713,500		

The Mexican oil fields, according to J. D. Northrop, have been conservatively estimated as having a capacity of 250,000,000 barrels a year. The attainment of this, however, is dependent upon marketing facilities. A recent statement by the Mexican Government indicates that on account of shortage of shipping, etc., only 10 per cent of the possible output can be marketed.

Volcanoes of Hawaii

The entire group of Hawaiian Islands, 20 in number, extending in a chain for hundreds of miles, is of volcanic origin, though some of the islets and reefs are but the wave-battered remnants of volcanoes whose fires died out long ago. The island of Hawaii has been formed by the coalescence of many recently formed volcanoes. The walls of the crater of the active volcano of Kilauea, on this island, are broken down on one side, giving access to its "lake of fire." This volcano has not always been gentle in its ways, but it is now so well behaved that the visitor can stand safely on the edge of its fiery pit and, if the volcano is active, watch the molten rock boiling and spouting 100 to 300 feet below. Sometimes many fountains throw up jets of glowing sulphurous lava and light up with ghastly glare the frowning crags that rim the crater. Then, suddenly and with deafening detonations, the jets rush together and convert the lake into a burning, seething, roaring mass, making a scene to which few others in the world are comparable.

Mauna Loa, on the island of Hawaii, and a neighboring volcanic cone, Mauna Kea, both nearly 14,000 feet above the sea, are among the highest island mountains in the world. On the other islands of the Hawaiian group there are volcanic mountains scarcely less interesting. The crater of Haleakala, in the summit of East Maui, 10,000 feet above sea level, is one of the largest

extinct craters in the world and is as well preserved as if its fires had been extinguished but a few years, instead of perhaps several hundred years ago.

Near the base of these mountains of igneous rock lie fields of sugar cane, which are just now of special interest. They are supplied with water from mountain streams and from wells and drainage tunnels that tap underground supplies. The Geological Survey, in cooperation with the Territory of Hawaii, has for several years been studying the water resources of the islands with a view to increasing the amount of water available for use in irrigation, and therefore in the output of sugar and other crops.

Several publications giving information on special phases of these interesting islands will be sent free on application to the Director of the United States Geological Survey, Department of the Interior, Washington, D. C. Among these are Water-Supply Paper 318, "Water resources of Hawaii, 1909-1911," by W. F. Martin and C. H. Pierce and G. K. Larrison. These papers deal mainly with stream measurements and kindred subjects but contain also much information of general interest.

GEOGRAPHY IN THE ST. LOUIS SCHOOLS

ST. LOUIS is one of the large American cities that have had committees of teachers engaged in a thorough revision of the course of study in Geography. The St. Louis committee has been at work some three years and has devoted a great amount of time and thought to their task. The April 1916, number of the *Public School Messenger,* the official publication of the Department of Instruction, contains the syllabus for third grade geography and the December 1917 number is devoted to a course in geography for grades 4 to 7 inclusive. We reproduce the general outline of the St. Louis course for grades 4 to 7.

Course of Study in Geography.

FOURTH GRADE.

First Quarter. Map study. Development of concepts of terms used in the study of cities, of country life, and of the more complex geographical terms.

Second Quarter. Application of concepts in the study of the upper Mississippi Valley. Many of these terms to be applied in exercises in journey geography.

Third Quarter. South America as a whole. Journey geography.

Fourth Quarter. South America as a whole. Journey geography. Asia as a whole. Journey geography. Europe—the Alpine country, the lowland countries, and great industrial regions.

FIFTH GRADE.

First Quarter. General geography, including

1. Globe study.
2. Surface of the earth.
3. Erosion.
4. Climate.
5. Effects of these variables upon plant and animal life.

Second Quarter.

1. Globe study.
2. Africa.
   a. Suggestive problems.
   b. Outline map studies.
3. Australasia.
   a. Suggestive problems.
   b. Outline map studies.

Third Quarter.

1. Asia.
   a. Suggestive problem studies.
   b. Outline map studies.

Fourth Quarter. United States, Northern Section.

1. Suggestive problems.
2. Outline map studies.

SIXTH GRADE.

First Quarter. United States, Eastern Section.

1. Suggestive problems.
2. Outline map studies.

Second Quarter. United States, Southern Section, Cuba, Porto Rico, St. Thomas, Haiti.

1. Suggestive problems.
2. Outline map studies.

Third Quarter. United States, Western Section, Alaska, Philippines, Samoa, Panama Canal.

1. Suggestive problems.
2. Outline map studies.

Fourth Quarter. Europe as a preparation for United States History.

1. Introductory regional study of Europe.
2. Suggestive problems. England, France, Germany.
3. Outline map studies.

SEVENTH GRADE.

First Quarter. Europe.

1. Suggestive problems. Austria-Hungary, Russia, Italy, Netherlands, Balkans.

2. Outline map exercises.

Second Quarter. Latin America with suggestions as to method of study as an aid in teaching United States History.

1. Suggestive problems.
2. Outline map exercises.

References:

Journal of Geography, January, 1917. Travel Booklets as an Aid to Geography.

Journal of Geography, May, 1917. Classified list of geographical materials.

Sutherland: The Teaching of Geography.
Studies on United States.

Dodge: The Teaching of Geography.

National Geographic Magazine.

Journal of Geography. Every number has material of value to teachers of geography.

Teachers' College Library.

Jefferson Memorial.

Public School Museum.

Underlying Principles.

For the lower grades nature study and geography are so nearly the same that they are seldom distinguished from each other. As we progress through the grades, however, the subject matter and aims of geography require definition.

Should geography be taught as an elementary school science, or as an elementary school social study? Should the geography course emphasize the physiographic factors and controls, treating man as a creature and modifier of his environment? Should an endeavor be made to have the pupils reason from physiographic cause to the effect on human activities, emphasizing the regions where this effect is most plainly marked? Or should the course be so conceived that we reason from effect to cause, emphasizing only those geographic controls which explain effects that are of outstanding importance to the people of this country and to the people of the commercially important countries of the world? If the trade of the United States with Africa is less than one per cent of this country's total foreign trade, if newspapers, magazines, and books are found to refer almost always to political or commercial activity and only seldom to require more than an elementary knowledge of physiography or of place geography, it seems quite evident that geography in the elementary school should be considered as a social study rather than as a natural science.

This does not mean that the study of geographic controls of

human activities, whether political, commercial, or cultural, should be minimized. It does mean that the approach should be made to the study of physiographic influences through the human activities controlled. Moreover, with the introduction and increase of elementary or general science in the upper grades we have the assurance of opportunity for the study of geography as a science.

It is worthy of note that the N. E. A. Commission on Reorganization of Secondary Education, Committee of Social Studies, has based the social study course largely on the geography of the sixth and seventh grades.

Assuming then, that the pupils are to pursue a social study rather than a natural science, the third grade is given over to developing some appreciation of how man's wants are satisfied, how man's wants are satisfied, how so many men and women and children are laboring near at hand and far off on the other side of the globe to satisfy our wants in return for satisfactions that are furnished them, indirectly perhaps, by the people of St. Louis. We find, too, that this intricate social and commercial relationship is not the product of a day, but that man has spent the ages learning how to live as he now lives. His agricultural implements, his transportation facilities, his manufacturing processes, are due to inventions which have been developing for thousands of years.

Of course, third grade children do not understand all of this, but the facts they have assure some glimpse of the wonderful story, full of human interest, in the background. Such a book as Dopp's "Tree Dwellers" really arouses this feeling in little children.

The work of the fourth grade helps the child to develop concepts concerning the response of man to his environment, but he should conceive of man as the creator as well as the creature of his world. The fourth grade emphasizes his relationship to the universe, his dependence on the Missouri and Illinois dairymen, the Minnesota iron miner, the Alaskan salmon fisher, the South American cocoa grower, the maker of watch mainsprings in Switzerland, and the fire-cracker producer in China. He gets his first introduction to the great, wide, busy, suffering, happy world. Broad human sympathies are a far more valuable product than interest in scientific laws.

In the fifth grade, one quarter year is given over to the development of some of the principles of geography, an effort to get some of the science of geography in hand, because our further study of human geography requires reference to physiographic causes. In the fifth grade, too, we consider those con-

tinents, Africa, Australia, and Asia, that are of less social importance, though they often raise very interesting science problems.

Returning in the last quarter of the fifth and the first three quarters of the sixth grade to the United States and North America, we make the study of each region through a typical industry, giving generous time to considering the interplay of physiographic forces and agents, developing and using more difficult concepts than were developed or used in the fourth grade.

In the last quarter of the sixth grade and the first quarter of the seventh, European geography is studied, with a background of European history, and in the second quarter consideration has been given to Latin America. Thus the geography of these two grades serves as a basis of American history, which is so largely geographic in its nature.

The method used throughout the fifth and sixth grades has been the solution of problems. These problems are preceded by the statement of a situation out of which the problem naturally arises, and teachers are urged never to give pupils the problem if the pupils can be gotten to raise the problem themselves. To facilitate this problem raising by the pupils is to teach geography well. Out of a larger problem may grow many smaller problems not all of which have been indicated in the outlines.

Maps.

For the best geography teaching, there should be constantly before the pupil good wall maps of the division or region being studied, and referring to maps should become a habit. A geography recitation without good wall maps cannot be expected to attain the aims set forth in this course of study.

In addition to wall maps, pupils should have an abundant supply of outline maps for use at their seats, for use in the class and for use in reviews and tests given to determine the results of the instruction and study. The list includes outline maps of

St. Louis and vicinity, taking both sides of the Mississippi River.
Missouri.
North America with outline of the countries.
South America.
Europe.
The World, Mercator's Projection.
United States, with outlines of states.
Africa, Australasia.

Map drawing is not advised except in the first quarter of the fourth grade, where it is a means to the end of acquiring the

ability to understand and use maps. The attempt to get children to make good maps is not deemed a wise expenditure of the time allotment for geography. The outline maps should be used in the study of each region in the fifth, sixth, and seventh grades. They should be used in review and tests at the conclusion of the study of each region.

THE RAPID DEVELOPMENT OF WATER POWER IN NEUTRAL EUROPEAN COUNTRIES

NEUTRAL countries are well aware that they will have to compete in a much keener market after the war and there are signs of stimulated activities in the Scandinavian countries.

Information collected during 1915 by the Dominion Waterpower Branch indicated that Norway had 5,500,000 water horsepower available, of which 1,120,000 turbine horsepower was developed, 400,000 horsepower being utilized for nitrogen fixation. It would be interesting to learn if progress in Norway has been on the same scale as that reported for Sweden. The Governments of both countries are rendering every possible encouragement in the development and use of "white coal."

Denmark has practically no water power and it is interesting to note, as indicating the national importance of power, that a suggestion has been put forward for a triangular agreement whereby Norway and Sweden should export hydroelectric power to Denmark, Norway to make up any power deficiencies caused thereby in southern Sweden, where the water powers are less extensive than in the north.

Barcelona, the "Manchester of Spain," a city of 300,000, is replacing steam power by hydroelectricity, and a Canadian company has already completed a large portion of an extensive system of reservoirs and hydroelectric stations on the Noguera Pallaresa and Segre Rivers. A recent number of the Journal of the Royal Society of Arts reports the formation of a powerful company to exploit the Douro Falls on the Portugal-Spain frontier, where 350,000 horsepower is said to be available.

Switzerland has been called the "industrial annex" of Germany, and, in 1910, 25 per cent of its 2,000,000 available water horsepower had already been developed. More recent information is not available; nevertheless, the mere fact that 32 horsepower had been developed in 1910 for each square mile of area is sufficient indication of the economic importance of Swiss water powers.

ALL ABOARD FOR A JOURNEY

Let this be the SLOGAN this year in EVERY school-room, when there is a lesson to be prepared and recited in GEOGRAPHY (political or physical)—in HISTORY (ancient, mediaeval, modern)—in CIVICS—in COMPOSITION—in ARITHMETIC—in AGRICULTURE; in fact in any study of the Grades, or Junior High School.

The pupils must SEE in order to UNDERSTAND; they must understand in order to EXPRESS themselves FREELY.
The most effective means for this purpose is PICTURE material; not the flat picture of the text-book, not the enlarged view—but the STEREOGRAPH, the stereoscopic view, of THREE dimensions giving the same impression of REALITY as in natural vision.

Copyright
Placer Miner Near the Yukon River, Alaska.

When the girl looking through the stereoscope reaches out to pluck the tempting orange growing on the tree, the scene is REAL to her. When the boy steps back to avoid falling into the yawning chasm at his feet, the scene is very REAL to him.

A pupil's opportunity to expand mentally each day, is limited only by the means of traveling at hand, but wherever there is established a

"600 SET"

there is NEVER a lost opportunity to SEE and to KNOW. So if there is not such a set in YOUR school, the first effort may be made today by

WRITING for a ["Partial Reprint" describing the "600 SET" Folder of FREE Loan Service of Colored Slides.]

ADDRESSING [**Dept. J- KEYSTONE VIEW COMPANY, Incorp.**
MEADVILLE, PA.]